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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09 937,363 | 01-17-2002 | Christian Wunderlich | B-7062 | 7951 |

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT PAPER NUMBER

1725

DATE MAILED: 05-19-2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,363

Applicant(s)

WUNDERLICH ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 and 16-20 is/are allowed.
- 6) ☒ Claim(s) 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayward (USPN 4720324).

Hayward teaches a process for producing a solderable surface and a functional surface on a dielectric substrate. The dielectric substrate is provided with copper structures (tracing), solderable surfaces are created by deposition of a Sn alloy by chemical reduction (electroless plating). A covering mask (resist) is placed over the solderable areas leaving functional areas (pads) exposed. Functional surfaces are created by chemical reduction (plating). After formation of pads and plated holes the masking material (resist) is removed (col 2 line 65 – col 3 line 10). The solderable material comprises gold, nickel, palladium or tin (col 5 lines 27-43). A solder mask is applied and functional areas are formed (col 5 line 35 col 6 line 20). Gold may be applied over the base layer of Ni (col 6 lines 44-46). The Sn layer may be removed

before formation of the functional area by acid etching (col 5 lines 58-68). The covering mask may comprise a photo-resist which is applied and developed by exposure or may be screen-printed. A first mask (130) may be applied before forming the solderable areas with necessary areas left bare (exposed, col 4 line 38 – col 5 line 16). It is noted that the circuit carrier can be formed by any method. See also Hayward claims 1-3, 8-20 and 27-30.

2. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Mack (USPN 4104111).

Mack teaches a process for producing a solderable surface and a functional surface on a dielectric substrate. The dielectric substrate is provided with copper structures (cladding), solderable surfaces are created by deposition of a Sn alloy by chemical reduction (electroless plating) (col 6 line 41 – col 7 line 12). A covering mask is placed over the solderable areas (col 7 lines 22-35) leaving functional areas (terminal pads) exposed (col 7 lines 29-35). Functional surfaces are created by chemical reduction (col 7 lines 36-66). After formation of pads and plated holes the masking material (resist) is removed (col 7 lines 56-62). Gold may be applied over the base layer which contains Ni (col 8 lines 8-26). The covering mask may comprise a photo-resist which is applied and developed by exposure or may be screen printed (col 2 lines 1-14). A first mask (13) may be applied before forming the solderable areas with necessary areas left bare (exposed, col 6 lines 32-40). It is noted that the circuit carrier can be formed by any method. See also Mack claims 1-4, 9 and 10.

3. Claims 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Pommer et al. (USPN 6242078 B1).

Pommer teaches a process for producing a solderable surface (pad) and a functional surface (plated via) on a dielectric substrate (col 3 line 14-20). The dielectric substrate is provided with copper structures (layer, col 3 lines 13-20), solderable surfaces are created by deposition of a conductive metal (Ni, 54) onto the substrate (col 4 lines 1-19). A gold layer (56) is applied over the Ni layer (col 4 lines 43-53). Both pads and plated vias are formed by chemical reduction (electroless plating, col 4 lines 20-26 and lines 38-42). A covering mask (resist) is placed over the solderable areas leaving functional areas exposed (col 5 lines 1-12). Functional surfaces are created by chemical reduction (electroless plating) of a metal (col 5 lines 12-23). After formation of solderable areas and functional surfaces, the masking material (resist) is removed. A layer of metal (54) is removed by acid etching (col 5 lines 24-37). The covering mask may comprise a photo-resist which is applied and developed by exposure (col 5 lines 1-13). It is noted that the circuit carrier can be formed by any method. See also Pommer claims 1-8 and 16.

Response to Arguments

4. Applicant's arguments regarding the process have been considered. It is noted that Hayward teaches the article and the article comprises the same structure regardless of the forming process.

Therefore the 102 rejection of article claims 14 and 15 as anticipated by Hayward stand.

5. Applicant's arguments regarding the process have been considered. It is noted that Mack teaches the article and the article comprises the same structure regardless of the forming process.

Therefore the 102 rejection of article claims 14 and 15 as anticipated by Mack stand.

6. Applicant's arguments regarding the process have been considered. It is noted that Pommer teaches the article and the article comprises the same structure regardless of the forming process.

Therefore the 102 rejection of article claims 14 and 15 as anticipated by Pommer stand.

Allowable Subject Matter

7. Claims 1-13 and 16-20 are allowed.

8. The following is an examiner's statement of reasons for allowance: The closest prior art teaches the invention essentially as claimed but teaches the mask covering the functional areas leaving solder regions exposed rather than covering solder regions and leaving functional areas exposed. See Hayward and Mack (USPN 4104111).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Labzentis et al. (USPN 6383401 B1), Krokoszinski et al. (DE 3704547 A1, Au over Ni, photoresist, IDS), Kikuchi et al. (USPN 6278153 B1, Au over Ni, photoresist), Bengston et al. (USPN 5235139, Au over Ni or Co, photoresist, Sn), Etchells (USPN 5536908, photoresist, Sn), Sweitzer (USPN 5615477, photoresists, removal of metal, Ag, Au solderable and functional areas), Coppin (USPN 4487654), Gomes et al. (USPN 5250105), Kukansis et al. (USPN 5869126) and Larson (USPN 6044550).
10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

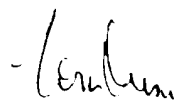
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) 306-5699. The examiner can normally be reached on M-F from 7-4 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-7115 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Lynne Edmondson
Examiner
Art Unit 1725

LRE
May 15, 2003


TOM DUNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700